

REMARKS

Claims pending in the instant application are numbered 1-21. Claims 1-21 presently stand rejected. Claims 1, 5, 15 and 17 have been amended. The Applicants respectfully request reconsideration of the present application in view of the amendments and the following remarks.

Request consideration of IDS mailed February 27, 2003

The Applicants respectfully request the Examiner to consider the references in the Information Disclosure Statement (IDS) mailed February 27, 2003. If the IDS is defective in any manner, the Applicants request the Examiner to notify the below named representative immediately.

35 U.S.C. § 112 Rejections

Claims 1 and 17 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable a person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the Examiner asserts that claim 1 recites “selectively removing portions of the material,” but the specification does not teach etchants. The Examiner asserts claim 17 recites “vertically etching the cladding material,” but the specification does not teach any material which are capable of performing this vertical etching step.

The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation (M.P.E.P. § 2164.01 citing *United States v. Teletronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988)).

The Applicants respectfully direct the Examiner's attention to the specification, page 5, lines 9-10, as well as Figure 4 and the corresponding teachings on page 6, lines 15-21. The specification describes an example of a lithographic technique of patterning and etching. Various lithographic techniques to selectively remove portions of a material are well known in the art. Thus, one reasonably skilled in the art can make or use the Applicants' invention from the disclosure coupled with information known in the art without undue experimentation. Therefore, the Applicants respectfully request the instant § 112, first paragraph, rejections be withdrawn.

Claim 15 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner asserts it is unclear what applicant means by "same radius as the corner" because a corner is a non-circular shape.

Definiteness of claim language must be analyzed, not in a vacuum, but in light of: a) the application disclosure, b) the teachings of the prior art, and c) the claim interpretation that would be given by one of ordinary skill in the art at the time of invention (M.P.E.P. § 2173.02).

Claim 15 as presently amended expressly recites "wherein the corner is rounded." Claim 15 analyzed in light of the specification, page 8, lines 8-13 and 18-22, and by one of ordinary skill in the art at the time of invention particularly points out and distinctly claims

the subject matter which the Applicants regard as the invention. Therefore, the Applicants respectfully request the instant § 112, second paragraph, rejections be withdrawn.

35 U.S.C. § 102 and § 103 Rejections

In the March 28, 2003 Office Action, claims 1-3, 5 and 16-18 are rejected under 35 U.S.C. § 102(b) as being anticipated by Huang et al., U.S. Patent Number 5,956,598. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al., U.S. Patent Number 6,194,285. Claims 1-7, 17-18 and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by Pan, U.S. Patent Number 6,322,634. Claims 8-10 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pan in view of Binkley et al., U.S. Patent Number 6,022,671. Claims 11-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pan in view of Ido et al. (WO 98/37445). Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pan in view of Nakos et al., U.S. Patent Number 6,054,745. Claims 14-15 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pan in view of Kleinknecht, U.S. Patent Number 4,039,370.

Claim 1 as presently amended expressly recites “further removing portions of the material from the region of the material to sharpen the corner” (emphasis added). Thus, the instant claims expressly recite a region of material. Portions of the material are further removed from the expressly recited region of material to sharpen the corner.

Huang is directed to fabricating a structure with a rounded corner in integrated circuits (col. 2, lines 59-62). Huang discloses forming a trench 306 in substrate 300 through a dry-etching process (col. 4, lines 1-5). Huang also discloses a pre-liner cleaning process of trench 306 that removes part of pad oxide layer 302 to form a sharp corner 307 (col. 4, lines

5-14), but Huang does not disclose removing additional portions of substrate 300. Thus, Huang fails to disclose, teach or fairly suggest “further removing portions of the material from the region of the material to sharpen the corner” as expressly claimed in the Applicants’ invention.

Lin is directed to forming a shallow trench isolation (STI) having reduced junction leakage. Lin discloses a trench corner 17 is formed when trench 45 is etched in substrate 10 (col. 1, lines 49-52). Lin also discloses that trench corner 17 becomes sharpened further when sidewall 55 retreats (col. 1, lines 60-62). However, Lin fails to disclose, teach or fairly suggest “further removing portions of the material from the region of the material to sharpen the corner” as expressly claimed in the Applicants’ invention.

Pan is directed to forming a shallow trench isolation structure. Pan discloses dry etching a substrate 102 to form a trench 112 (col. 3, lines 64-65). Pan also discloses cleaning the trenched structure 118 (col. 4, lines 6-8). However, Pan fails to disclose, teach or fairly suggest “further removing portions of the material from the region of the material to sharpen the corner” as expressly claimed in the Applicants’ invention.

Thus, Huang, Lin, and Pan, whether taken singularly or in combination, fail to disclose, teach, or fairly suggest at least one of the expressly recited limitations of the Applicants’ invention as presently claimed. Accordingly, the present invention would not be anticipated by nor rendered obvious by the cited references. Independent claim 17 distinguishes for at least the same reasons as claim 1. Claims 2-16 and 18-21 are dependent claims and distinguish for at least the same reasons as their independent base claims in addition to adding further limitations of their own. Therefore, the Applicants respectfully request that the instant § 102 and § 103 rejections be withdrawn.

Conclusion

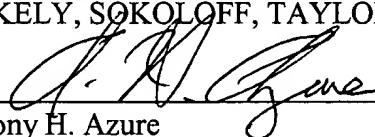
The Applicants submit that in view of the amendments and remarks set forth herein, all instant rejections have been overcome. Therefore, the Applicants respectfully request the Examiner to reconsider and withdraw all presently outstanding rejections and issue a timely Notice of Allowance in this case.

Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee due in this matter.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: 6-12-03


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6-12-03
Date